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Geothlypis trichas. NORTHERN YELLOW-THROAT.—Fairly common in the swamps and heavy timber. Specimens from Portageville and St. Francis River are referable to the northern form.

Telmatodytes palustris iliacus. PRAIRIE MARSH WREN.—Rather scarce in the marshes along St. Francis River and on Cushion Lake, but perhaps not all had arrived from the South. Two specimens were taken at the above localities.

A SERIES OF NESTS OF THE MAGNOLIA WARBLER.

BY CORDELIA J. STANWOOD.

THE warblers were late in 1907. The cold, backward spring was behind time in unfolding catkin and leaf whereon the insect hosts prey, and the warblers who live on the insect life keep pace with the resurrection and birth of moth and butterfly, mosquito and aphid, caterpillar and beetle. It was the 17th of May before I heard the *weechy, wee-chy, wee-chy*; or the *wee-o, wee-o, wee-chy*; or the *wee-chy, wee-chy, wee-chy-tee* of the Magnolia Warbler, and all of a week later before I saw one. After that they came in flocks, those gorgeous, floating flowers from their winter homes in Panama and Mexico.

The Magnolia is one of the most beautiful of the birds that comes to nest in the cool north. While migrating the bird is noticeably restless, even for a warbler, keeping well hidden within the evergreens where it feeds much of the time, although it makes frequent excursions to the larches, gray birches and other trees of the swamp and its surrounding woodlands.

On the 13th day of June, I took my luncheon for a day in the woods, not that I was going far, but the days are all too short when birds are migrating and nesting, and I was bent on hunting birds' nests. Towards noon my efforts were rewarded by finding the nest of a Magnolia Warbler nearly completed. Two days later, I came upon a second nest of the same bird, and six days later a third. On the 15th day of July, I just missed placing a fourth. By accident, I discovered the empty nest later.

All these nests were composed of similar materials,—hay, stems of cinquefoil, a plant fibre resembling hair, horsehair, plant down and spider's silk, yet each one had a character of its own, due to the greater proportion of one or other of the materials used in the nest, and the way in which the nest was placed in the tree.

The first nest was the most exquisite Magnolia Warbler's nest I have ever found, and I have been so fortunate as to locate at least twenty-five of them. In this nest some hay and the fine tops of cinquefoil served as a foundation, but the greater part of the small mansion consisted of a fine black vegetable fibre resembling horse-hair. So much of this black, hair-like material was used, that when the edge was covered with down from the willow-pod, a person looking at the dainty abode in its setting of fir twigs could see nothing but the jet-black lining and the fluffy, silvery plant-down around the throat of the nest. The structure was partly pensile, being bound with spider's silk to the two branches at right angles to the main stem. The front part of the bottom was supported by the branches beneath. The interior was modelled by the dainty curves of the mother bird's breast. It was built in a small fir two feet from the ground, surrounded by a growth of fir and gray birches.

The second nest consisted mostly of cinquefoil stems, with a few strands of hay, a lining of horsehair, and a few dots of plant down fastened over the exterior of the nest with almost microscopic meshes of spiders' silk. The cinquefoil stems make a very attractive nest. It is so brittle, it cracks every two or three inches, giving the nest a light, angular appearance which is very different from the effect produced by using hay. The dots of plant down, with the almost imperceptible silk veiling, add also to the effect of lightness, yet a Magnolia Warbler's nest is a very substantial little affair. It was placed close against the stem of a fir where the ascending branches form a partial crotch, and was about three feet from the ground.

The third and fourth habitations had the appearance of being shallower. They were made of about equal parts of hay and cinquefoil, and lined with black hair-like plant fibre and a few horsehairs. The outside was strengthened with plant down and spider's silk, and it was safely anchored to the surrounding twigs

with spider's silk. One of these nests was placed on a forked branch near the end of a long spruce bough some three feet above the ground; the other between the extreme tips of the branches of two little fir trees, at about the same height as the former.

A typical nest was about $1\frac{1}{4}$ inches wide inside at the top, and $1\frac{1}{4}$ inches deep, the bottom a half inch thick, and the walls at the top three fourths of an inch thick. All the nests somewhat resemble in shape the bowl of a spoon. In three nests there were four cream-white eggs in each, with the pinkish tinge that nearly all freshly laid eggs have, spotted in a ring around the larger end with reddish brown, umber, and black. There were minute specks over the entire egg.

In the first nest, which was unique in many respects, the eggs were marked with burnt umber all over the larger end, as if a person had scrawled over them with a Japanese brush.

The eggs were laid on four successive days before 8.30 A. M. . On the fourth day the female took up the task of incubation before 10.30 A. M.

If one comes cautiously to the nest while the bird is incubating, the startled little mother usually slides silently into the undergrowth and remains there. Once when I waited by the nest a long time, the bird returned to scold, but kept carefully out of sight and chirped very little. Another bird when flushed from the nest flew to a near-by tree and fell like a dead weight from the limb with (apparently) a broken wing.

In twelve days the eggs "had wings, and beak, and breast."

On the fourth day one of the nestlings opened its eyes, tiny slits, but it closed them quickly as if afraid of the light. The fledglings were burnt orange in color, covered with long, dark brown down. The quills and feather tracts were well indicated.

On the eighth day the nest was empty, but I saw the young birds fluttering through the trees with the parent birds, only a few yards from the nest. Probably the violent rain and thunder storm of the day before had hastened their departure. (The other nests were either destroyed or the young eluded my vigilance.) When the young birds were in the trees near the nest, the old bird exposed herself most needlessly. All her caution seemed to have vanished. It was an effort to attract attention to herself from the young birds, who were immature and noisy.

Although the nests of the Magnolia Warbler were so similar, I had actually to see the bird sitting on three distinct types of nest before I could believe that all the structures were made by the same species. The third and fourth types were sufficiently similar to be identified.

In 1908, I had the opportunity to make a careful study of four more Magnolia homes. May the 13th, the birds had just begun to place the lining in a nest about two feet up in a low spruce. Both birds brought cinquefoil and black plant fibre to the nest, and entered it to put the materials in place. The female seemed to do most of the work. She pressed the material into place with her breast, moving around gradually, so as to make the sides uniform. When the birds detected my presence, which was almost immediately, they always ceased coming to the nest for a time. The rainy weather seriously interfered with work on this nest. The last material was added six days after the nest was started.

Three days after the nest was completed, on June 5, the bird laid one egg about half as large as the ordinary Magnolia egg. That would indicate that she was a young bird and this her first nest. On the evening of the twelfth day of incubation, an excessively hot day, there were two young birds in the nest. Probably one young bird died from the hot sun rays pouring down upon it while the parent bird was procuring food; the small egg remained unhatched. Of the two nestlings, one was much stronger and larger than the other.

On the third day, the eyes of the nestlings were beginning to open, and the feather tracts were indicated by dark brownish blue spaces. On the fifth day the wing quills were three fourths of an inch long, and the body well covered with pin feathers.

On the seventh day the wings of the young Magnolias were a mixture of yellow-green, black, and blue-gray, with buffy wing-bars. The head and back were dark brown, the breast heavily striped with grayish brown, and the belly was yellowish. On the morning of the tenth day, June 30, the nest was empty. I visited this nest every day for thirty-one days. If my frequent visits did not hasten the exit of the young birds from the nest, it would be strange.

June 3, 1908, I came upon two Magnolias just starting a nest in

a fir three feet from the ground. First bits of spider's silk were laid in the shape of the nest on the brush-like needles of the fir. The bird seemed to secure the spider's floss by rubbing it against the twigs with her breast. Later bits of hay or cinquefoil stems were bent in the shape of a loop or swing and secured by the silk. The next step was to bend the material in the shape of a circle around the top, always pressing it into shape with the breast and securing it at intervals with knots of spider's silk. A frame similar to this seems to be constructed by the *Magnolias* always before filling in the foundation. The birds were three days placing the foundation of hay and cinquefoil, and three days lining the nest with horsehair. I have seen nests that I thought might have been constructed more quickly, so little material was used either for foundation or lining.

The other two nests were similar to those I have described except that one was five feet up, and some of the red, hair-like fruit stems of bird-wheat moss were used in the lining. This was placed between the tips of the branches of two low trees. The bird that built the high nest with the colored stems in its lining, laid the smallest eggs I have ever seen in a clutch of this species, and was extremely gentle. Unfortunately crows or squirrels carried off the eggs so that at this point my observations ceased. The small eggs would indicate they were laid by a young bird, and the somewhat exposed site suggest that she was inexperienced.

In 1909, I found five nests similar to the others, with these slight differences: One was placed seven feet up in the tips of a long spruce branch and lined with coarse dark brown roots such as the Hair-bird uses for the exterior of her nest; another had a middle lining of the fine tips of meadowsweet twigs, which was coarse material for the *Magnolia* to handle. This latter was placed in the axis of a fir branch two feet from the ground.

The eggs of this year were much blotched with reddish brown or umber, sometimes in the wreath around the larger end the blotches being confluent; at other times the blotches pretty well covered the larger end or extended far down the sides of the egg.

On the second day of July, 1909, I came upon parent birds with young. Both old birds flew around me, chirping with consternation when I paused to chat with the dainty mite that

confronted me on a low fir. The mother spread both wings helplessly and fell from branch to branch and from low trees and stumps to the ground. The male bird contented himself with flying around with his mate and chirping. This would indicate that the male assists his mate in the care of the young after they leave the nest.

Summary of observations of Magnolia Warblers, 1905-1910.

1905, first seen, May 14.

1906, first seen, May 19.

1907, May 17, first seen; June 14, adding down to nest; June 15, foundation, no lining; June 19, 4 eggs, began incubating to-day; July 15, nesting; Aug. 1, same nest empty.

1908, May 15, first seen; May 30, foundation of nest with 3 days' work done; June 3, nest completed. June 3, nest just begun; June 9 nest just completed.

1909, May 13, first seen; June 5, nest started; June 16, bird incubating; June 19, bird incubating; June 13, bird incubating.

1910, May 27. Framework of nest started four feet up in a clump of pine. June 1, beginning to line nest with pine needles, horsehair and seed stems of bird-wheat moss. June 5, 2 eggs laid. June 20, young birds out of shell — 13 days. June 22, eyes not open; a dark spot on the head, a dark line down the back and on the edge of the wings indicate the feather tracts. Third day (morning). Wing quills $\frac{1}{4}$ inch long. Fourth morning; quills $\frac{1}{2}$ inch long, eyelids well separated, color deepened to dark burnt orange. Fifth day, wing quills $\frac{3}{4}$ inch long. Sixth day, tips of feathers just beginning to protrude beyond the sheaths, and head covered with downy feathers. Eighth day (evening) young covered with gray and brown downy feathers; tips of tail feathers showed buffy, and the wing-bars were conspicuous; much of the baby down still clung to the tips of the feathers; birds alert but not timid. Ninth day (morning), birds not timid; may leave at any time. Tenth day, June 30. Nest empty. One of the four eggs not fertile.